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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/469,308	12/22/1999	IK PYO HONG	K-150	4822

7590 11/28/2003  
Fleshner & Kim, LLP  
14500 Avion Parkway  
Suite 125  
Chantilly, VA 20151

EXAMINER

LI, SHI K

ART UNIT	PAPER NUMBER
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2633

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DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/469,308

Applicant(s)

HONG, IK PYO

Examiner

Shi K. Li

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 3,7 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,8,9 and 11-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-2, 4-6, 8-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al. (U.S. Patent 5,969,837) in view of Okubo et al. (U.S. Patent 5,689,355).

Farber et al. discloses in FIG. 2 a repeating system. FIG. 2 comprises an input combiner for combining RF signals, an amplifier for amplifying the combined RF signal, a fiberoptic transmitter 14 with RF signal at its input, an optical fiber 16 and a fiberoptic receiver 22. Farber et al. discloses the details of the fiberoptic transmitter in FIG. 3 and the details of the fiberoptic receiver in FIG. 5A. FIG. 3 comprises a 10 KHz pilot tone signal mixed with the RF signal from input combiner 12. FIG. 5A comprises a detector 85 to extract the pilot tone and control a gain of an amplifier. Farber et al. further discloses in FIG. 5B the use of a microprocessor to compare the received signal and control a gain of an amplifier. The differences between Farber et al. and the claimed invention are (a) Farber et al. does not teach to use the level of the tone signal at the transmitter as the reference level at the receiver, and (b) Farber et al. does not teach the use of a modem to modulate/demodulate gain control signal. Okubo et al. teaches in col. 6, lines 51-59 that to compensate the loss of a transmission line, the received signal should be restored to the level the same as it was sent. Okubo et al. also teaches in FIG. 2 and FIG. 3 the use of modem to modulate gain control signal. One of ordinary skill in the art would have been motivated to combine the teaching of Okubo et al. with the repeating system of Farber et al. because the suggestion of restoring the level to the same as it was transmitted overcomes the issue raised in

Art Unit: 2633

col. 2, lines 34-40, i.e., it automatically adjusts signal levels regardless of variation in length of optical cables, and the use of modem shifts the signal spectrum to be compatible with the RF signals so that the mixed signal can be processed together as bandpass RF signal. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to restore a signal to the same level as it was transmitted and modulate/demodulate the gain control signal using modem, as taught by Okubo et al., in the repeating system of Farber et al. because such approach automatically adjusts signal levels regardless of variation in length of optical cables and allows the gain control signal to be conveniently processed.

Regarding claims 2 and 6, Farber et al. suggests in FIG. 5B the use of microprocessor 92.

Regarding claims 4 and 8, Farber et al. teaches to use the comparison result to adjust the gain of an amplifier for the RF signal.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1-2, 4-6, 8-9 and 11-13 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

Art Unit: 2633

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 703 305-4341. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703 305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.

skl

*Leslie Pascal*  
LESLIE PASCAL  
PRIMARY EXAMINER